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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,073	04/20/2001	Todd C. Sacktor	13492	2721

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EXAMINER	
PAK, MICHAEL D	

ART UNIT	PAPER NUMBER
1646	

MAIL DATE	DELIVERY MODE
10/06/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/839,073	SACKTOR, TODD C.	
	Examiner	Art Unit	
	Michael Pak	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date. _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 28, 2010 has been entered.

Response to Amendment

2. Claims 16-22 are examined below. Claims 1-15 have been cancelled.

3. Applicant's arguments filed April 28, 2010, have been fully considered but they are not found persuasive.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 17 and 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recite spinal cord neuron which is confusing because the claim 16 from which claim 17 depends recite CA1 pyridimal neuron which is not located in the spinal cord.

Claim 22 recites the limitation "the subject" in line 1. There is insufficient antecedent basis for this limitation in the claim.

5. Claims 16-22 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the claimed method using in vitro on hippocampal slices with the inhibitor, does not reasonably provide enablement for in vivo contacting of the neuron with the inhibitor. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Applicant claims methods of decreasing neuronal synaptic transmission in a mammalian subject by administering inhibitor of protein kinase M zeta (PKMζ). The examples taught in the specification demonstrate only injection of myristoylated pseudo substrate peptide of SEQ ID NO:4 and chelerythine inhibitor of PKMζ to whole cells in culture using a pipette. There is no actual demonstration that any animal has decreased neuronal synaptic transmission using the techniques disclosed, although the specification teaches at page 14, lines 18-21 that the “principle active ingredient” can be

administered at about 0.1 to about 10 nanomolar doses to achieve the desired results. There is no teaching that this amount is indeed necessary and sufficient to achieve decreased neuronal synaptic transmission in any animal. Since PKMζ must cross the blood-brain barrier to achieve its intended effect, there is no demonstration that applicant has achieved any form of a pharmaceutical preparation that would do so. In addition, it is unclear that the disclosed amounts would decrease neuronal synaptic tramsmission in an animal without causing serious unintended consequences. As noted by Oster et al. [Molecular Brain Research 127:79-88 (2004)], the PKCs (protein kinase C) family of if isozymes is complex, with many functions. It is noted at page 80, first column: "PKCs participate in a wide variety of physiological and pathophysiological processes in the brain and the whole organism. The question, however, of specific PKC participation in the different signaling pathways involved in these processes, is far from answered. The broadly overlapping substrate specificities and biochemical properties of the PKC isotypes in vitro, suggesting at least partial enzymatic redundancy in vivo, further complicate this challenge." Regarding PKMζ, Oster et al. state: "The PKMζ protein lacks all these autoinhibitory elements. In fact, once transcribed, the activity of PKMζ seems only to be regulated by protein degradation." Given that the PKMζ protein is only regulated by protein degradation, it is unclear what effect excessive amounts of inhibitor of PKMζ may have on physiological processes in the animal that receives this protein in a method to decrease neuronal synaptic transmission. Applicant's own post-filing reference published in 2002 using a Drospophila melanogaster transgenic fly shows enhanced memory when the introduced mouse PKMζ gene was induced in vivo.

See Drier et al. [Nature Neuroscience 5(4):316-324 (2002)]. This is not commensurate with administration of exogenous inhibitor of PKMζ, however, and the reference does not teach how one would accomplish decreased neuronal synaptic transmission by simply administering the PKMζ protein to an animal. Further complicating the predictability of applicant's claimed methods, applicant's own prior art published in 1998 demonstrates that transgenic mice with double the expression level of the PKMζ protein demonstrate not only "significantly reduced memory" but "show an increased frequency of neurofibromas." This teaching in the prior art would seriously question the enablement of administering inhibitor PKMζ protein to mice, and possibly all mammals for the purpose of decreasing the neuronal synaptic transmission. See Barad et al. [Society for Neuroscience Abstracts 24(1-2): p328, abstract no. 131.14 (1998)].

Furthermore, claims are drawn to decreasing synaptic transmission in all brain neurons and spinal cord neurons. However, the long term potentiation has been taught only in CA1 region of the brain. Thus it would require undue experimentation to discover all the neurons claimed which comprises long term potentiation characteristics.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 16-20 rejected under 35 U.S.C. 102(b) as being anticipated by Hrebetova et al. (J. Neuroscience, 1996).

Hrebetova et al. teach electrophysiological measurements from hippocampal slices with test stimuli of Schaffer collateral/commissural fibers to measure LTP and LTD in the CA1 region with chelerytherine (page 5325; figures 1-3).

7. No claims are allowed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pak whose telephone number is 571-272-0879. The examiner can normally be reached on 8:00 - 2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Nickol can be reached on 571-272-0835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael Pak/

Primary Examiner, Art Unit 1646